Invertebrata

Tasmania's Invertebrate Newsletter

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Articles and notes:

July 1998
No. 11

Invertebrata is produced by the Queen Victoria Museum and Art Gallery, Launceston, Tasmania.

We publish articles and short notes on all aspects of invertebrate biology and conservation in Tasmania.

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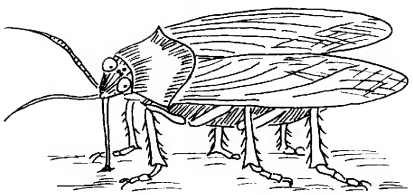
Return of the Spider Woman

The Queen Victoria Museum's spider collections have recently received a major upgrade through the efforts of Ms Lisa Joy Boutin. Lisa, currently based in Wellington, New Zealand, at the Museum of New Zealand Te Papa Tongarewa, is a total spider fanatic, as well as being a highly skilled spider taxonomist. Lisa visited Tasmania on holiday early this year to collect spiders, check spider collections and talk spiders with anyone interested. She was so excited and complimentary about the QVMAG collections, and so keen to work on them, that I determined not to let the opportunity go past without taking full advantage. Thus it was that Lisa returned at the beginning of April to work under contract to the Museum for a period of 10 weeks.

The main problem with a large part of the spider collection (as well as for several other invertebrate groups) is that the specimens are shelved in 'no-man's-land'.

(continued p. 3)

What is it?



'While procuring Fern leaves for the Huts Mackie caught a curious insect supposed to be a kind of Locust the Eyes are as clear as crystal & the pupil quite black seems to be a fine aperture at the back of the transparent globule of the Eye – between the Eyes are 3 bright circular spots resembling Diamonds set in gold, it has a proboscis which it has the power of carrying close to its body and when it drinks it makes use of it as the common flies do – it has a complete cuirass of shell armour as far as the top of the wings its body is like that of a cockchafer & it has also 6 legs – the wings are nearly transparent and so large the insect altogether resembles a large Moth'

Henry Hellyer, 3 August 1827, near Cascade Creek, Burnie

...from p. 45 in *'H. Hellyer's Journal of operations in opening a Road from Emu Bay towards the Hampshire Hills'*, a manuscript in the University of Tasmania Archives. Reproduced through the courtesy of the Archives and Brian Rollins. The image above is a photocopy of an ink-jet print of a scan of a tracing of a photocopy of a microfilm of Henry Hellyer's original! Any idea what it is? For the identity of last issue's 'What Is it?', see p. 7. Contributions to this feature are welcome but should be line illustrations, not photos.

Editorial

For the past 25 years the Australian Biological Resources Study (ABRS) has been the powerhouse of Australia's taxonomic effort. Long before the Commonwealth Government signed the Convention on Biological Diversity (1993) and committed Australia to compiling an inventory of its flora and fauna, ABRS had been doing just that job, quietly and effectively.

Through its Participatory Program, ABRS has been funding basic taxonomic research by local and overseas specialists on a vast range of groups. The Publication Program, meanwhile, has been producing text and electronic versions of the *Zoological Catalogue of Australia* and superbly edited volumes in the *Fauna of Australia, Flora of Australia* and *Fungi of Australia* series.

None of this has protected ABRS from the threat of funding cuts. For a while last year it looked like the Publication Program was going to be dead in the water, but a campaign of protest apparently persuaded the responsible Minister, Sen. Robert Hill, to reconsider ABRS funding.

Next we heard that Environment Australia (the Commonwealth agency which currently hosts ABRS) was going to 'evaluate' ABRS and the Commonwealth's Biodiversity Program. For those familiar with such things, 'reviewing the effectiveness' of these programs sounded a lot like 'finding an acceptable way to cut their budgets.'

The evaluation was completed in January. Surprise: it recommended a massive *increase* in ABRS funding, to $3 million per year for the Participatory Program (compared to $1.3 million in 1997-98) and another $3 million per year for the Publication Program.

On 12th May, Senator Hill announced that the *total* ABRS allocation for next year would be $2.2 million, up from $2.1 million in 1997-98; this is to increase to $2.5 million per year over the next three budget years. The Commonwealth Government seems very proud of its billion-dollar Natural Heritage Trust created through the part-sale of Telstra. What a pity more of that money isn't finding its way into ABRS, which (to quote a Government blurb) 'aims to underpin the conservation and ecologically sustainable management initiatives funded under the NHT'.

Invertebrate Calendar

(This is the place for notices of conferences and meetings, lectures and seminars, birthdays and anniversaries, annual mating swarms, etc. The absolutely final Calendar deadline for the November Invertebrata *is Friday, 30 October.)*

The 10th International Congress of Acarology is being held in Canberra, 5-10 July 1998. This is the first time the Congress has been held in the Southern Hemisphere, so it provides a rare opportunity to learn about mites and ticks from a Gondwanan point of view. For more information contact Bruce Halliday at bruceh@ento.csiro.au, the Congress Secretariat at acarology@acts.ccmail.compuserve.com or the conference Web site, http://www.uq.oz.au/entomology/mite.conf.html.

The 29th AGM and Scientific Conference of the Australian Entomological Society will be held at the University of Queensland, Brisbane from Saturday, 26th to Tuesday, 29th September 1998. The meeting will immediately precede the 6th Australasian Applied Entomological Research Conference, and will overlap with the annual meeting of the the Council of Heads of Australian Entomological Collections; all meetings are at the University. The AES meeting will include sessions on medical entomology (contact Des Foley, (07) 33651358, d.foley@mailbox.uq.edu.au), forest entomology (Judy King, (07) 38969447, king@qfslab.ind.dpi.qld.gov.au) , insect movement (Toni Withers, (07) 3375 0724, t.withers@ctpm.uq.edu.au) and systematics and software (Chris Burwell, (07) 3840 7703, chrisb@qm.qld.gov.au). For general information about the conferences contact Sally Brown, Institute of Continuing and TESOL Education (ICTE), Joyce Ackroyd Building, University of Queensland, Brisbane QLD 4072; ph (07) 33656360, fax (07) 33657099; e-mail sally.brown@mailbox.uq.edu.au.

The 4th Conference of the International Society of Hymenopterists is to be held in Canberra, 6-11 January 1999. For more information contact Dr Ian Naumann, CSIRO Entomology, GPO Box 1700, Canberra ACT 2601, iann@ento.csiro.au.

PVA to stick snails in place

Forestry Tasmania is commissioning a study of the comparative value of different ways of ensuring the conservation of the land snail *Tasmaphena lamproides* in the Togari forest block in the Northwest. In this area there is an unusually high density of this rare species. When we are considering how best to conserve a species we are faced with questions such as do we need to reserve land from logging and if so how much and in what sizes and spatial arrangements? *T. lamproides* recolonises after logging but it takes about 40 years for numbers to build up to prelogging levels. Thus, another option for this species is to ensure a certain amount of habitat is older than 40 years at any one time but not to specifically set aside any one area from logging, i. e. extend the length of the rotation. These different options will be compared by the use of population viability analysis (PVA), which involves computer modelling of the different scenerios. The work will be undertaken by Helen Regan and Mark Burgman from the Univerity of Melbourne. This is the first time this technique has been used with a Tasmanian invertebrate. As far as I know it has only been used once or twice on invertebrates elsewhere in Australia. A report on the work should be available in February next year.

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More information:

Bonham, K.J. and Taylor, R.J. 1997. Distribution and habitat of the land snail *Tasmaphena lamproides* (Cox, 1868) (Pulmonata:Rhytididae) in northwestern Tasmania. *Molluscan Research* 18: 1-10.

Spider expert visits QVMAG
(continued from p. 1)

Although they have been sorted to 'spiders' they are not sorted to family and thus cannot be sent to taxonomists because, in most cases, these require that specimens already be sorted to family level. For this to be done reliably requires a person with a great deal of experience, and such people are scarce enough that when one arrives on the doorstep, as did Lisa, my strategy is to rapidly spin a web across her/his path!

Unsorted spiders at the Queen Victoria Museum include the very extensive collections made by Dr Bob Green during his long-term studies at Maggs Mountain; specimens from surveys such as those at Pump House Point, Lake St Clair and Squeaking Point; as well as material from caves donated by Stefan Eberhard, from a biodiversity project in northeast Tasmania and from highland streams donated by staff of the Inland Fisheries Commission. In addition to these there are numerous specimens from incidental collecting and public enquiries.

Many very interesting finds were made among the material. From Pump House Point there were several specimens of two species that cannot be placed at family level. Specimens of one are with Mike Gray at the Australian Museum, and those of the other will be sent to Jonathan Coddington at the Smithsonian Institution. In addition to these there are new species in the families Zodariidae, Thomisidae, Ctenidae and Amaurobiidae. From Maggs Mountain there was a plethora of undescribed species and also some probable new genera, reflecting the paucity of collecting in that area generally. Again, among the spiders collected in caves by Stefan Eberhard there are undescribed species from the families Mysmenidae, Theridiosomatidae and Metidae. Among the Theridiidae there are particularly interesting species with varying degrees of eye reduction and loss of pigmentation suggesting these are probably confined to the cavernicolous environment. Unfortunately, Lisa ran out of time before she had a chance to work through more than a few of the Inland Fisheries specimens, most of which had been netted while floating in highland streams. However, the few that were examined suggested that here was another gold mine of new information, including specimens that are probably the first records for the family Cyatholipidae from Tasmania, as well as several new species of Desidae.

Clearly Lisa's visit created much excitement in the QVMAG Zoology section, so much so that we will even forgive her for leaving behind a pile of curation, databasing and loan forms to be worked through! The thrill of the chase will continue over the next couple of years as the eight taxonomists who will work on the material complete studies of their groups and report on their findings.

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Wanted!

Regular reports of 'people news' and invertebrate goings-on from the Parks and Wildlife Service, Inland Fisheries Commission, CSIRO Marine Labs, University of Tasmania departments and any other agencies, institutions or individuals studying invertebrates in Tasmania. We and our readers are especially keen to hear from non-professional zoologists with tales and tidbits about this State's fantastic invertebrate fauna. Items for the November *Invertebrata* should be posted or e-mailed to the editor before the end of October. Pictures are welcome but should be black-and-white, not colour and not in a range of grays; send these as hard copy, bitmaps on diskette or JPEG files by e-mail.

Monitoring for autumn gum moth in *Eucalyptus* plantations

Autumn gum moth (*Mnesampela privata*) is an important pest species on eucalypts in Tasmania, Victoria, South Australia and more recently in Western Australia, where it attacks Tasmanian blue gum, *E. globulus*.

In past years, monitoring for immature stages of autumn gum moth meant sampling a certain number of shoots and trees within susceptible plantations of *Eucalyptus nitens* and *E. globulus* — a tedious and time-consuming task. Forestry Tasmania has now developed a monitoring system using black-light traps placed in plantations for a couple of nights a week during the peak flight period of the adults, in late January and early April.

Male moths in the traps are counted. Few females are caught in the traps, but field populations are known to be approximately one male to one female. An estimate of the adult population is then related to egg deposition levels which in turn are related to potential damage. In other words, low adult numbers means few egg batches, which means only slight damage.

That's the theory, anyway. If the adult/egg/damage relationship holds for differing population levels, then the days of tramping through plantations may be over, at least for surveys of autumn gum moth. However, if high numbers are found, the boots have to go back on and a survey carried out to assess the need for control options. As a rough guide, one to four moths captured per night is regarded as low-level. Above this level a survey would be conducted. At one site, we caught between 50 and 170 males. The egg deposition counts resulting from that population indicated that every shoot on every tree in the transects monitored was occupied. At the five-moths-per-night level, about 20% of monitored shoots were occupied by egg batches. The relationship between number of moths caught and subsequent egg deposition will be better defined after the next monitoring.

This year saw the first operational run of the black-light traps and we estimate we saved seven one-person days in the field. Some fine-tuning and a second run next year may allow us to introduce the system as a standard method in State plantations. With an expanding hardwood plantation estate, including more *E. globulus* in the next five years, the saving in monitoring time should show the worth of the research effort in developing the system. We may even export the system to W.A. We gave them the problem, after all — now let's sell them a solution!

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Pepper-suckers and taco-lovers

A recent visit to Tasmania by Professor Merrill Sweet from Texas A&M University helped local entomologists in the Department of Primary Industry and Fisheries to improve the accuracy of their State checklist of insects. Before Sweet arrived in March we had recognised and listed 42 species of seed bugs, compared with 65 after his week here!

Sweet's speciality is seed bugs, family Lygaeidae. These include many harmless native species but also a couple of pests, namely Rutherglen Bug (*Nysius vinitor*) and Strawberry Bug (*Euander lacertosus*). Lygaeids damage crops when they suck sap from soft fruits such as strawberries whose seeds sit on the outside of the fruit. Feeding on the seeds themselves, the bugs' prime interest, is not such a problem in strawberries. Growers of seed crops in the brassica (cabbage) family can lose seeds when Rutherglen Bugs move from weeds to seed crops in dry weather.

Sweet visited Tasmania primarily to collect fresh specimens of certain lygaeid taxa for a DNA/morphological study of the family tree worldwide. The taxa hunted were *Regatarma*, *Henicocoris* and the sister family (cladistic outgroup) Idiostolidae. While he was here, Sweet inspected the DPIF seed bug collection and DPIF helped him with field collecting. We visited farms, roadsides, Midlands woodland and grassland (with rich results), montane woodland, heath and turf at several localities, wet and dry forests around Mt Wellington, rainforests and Southwest habitats. Sweet came away quite impressed with the diversity of seed bugs in Tasmania. In one week he doubled the number of taxa he had accumulated for DNA analysis after a couple of months on the mainland.

He also discovered new facets of the biology of some species. The main target of his collecting was *Monteithocoris hirsutus*, 'the Hairy Monteith Bug', named after the original collector, Geoff Monteith of Queensland Museum. The bug belongs to the family Idiostolidae which is known only from southeast Australia and Chile. *M. hirsutus* is a Tasmanian endemic described from Mt Barrow. After considerable searching at Mt Barrow and Projection Bluff these large brown bugs (8 mm long) were located feeding on the seeds on mountain pepper (*Tasmannia lanceolata)* at the latter locality. I guess a life outdoors in the high country and a diet solely of pepper seed qualifies a species as an 'A type' ecological strategist, i.e. highly adapted to an adverse environment! Mountain pepper, incidentally, is becoming an economic plant in Tasmania, being used as a bush spice in cheese, liqueur and mustard (by Ashgrove Cheeses), and it may be exported to Japan as an antibacterial agent and flavouring in tooth paste.

The host plants of the other Australian idiostolid bug genus, *Trisecus*, remain unknown. A Tasmanian *Trisecus* species is known from several wet forest or wet woodland localities and a there is a Victorian species. The only other member of the family is the Chilean idiostolid bug in the type genus *Idiostolus*. Is it associated with *Drimys*, a relative of mountain pepper, in Chile?

Professor Sweet was assisted on his trip by agricultural scientist Ixel Obregon from Tapatula in far southern Mexico. Obregon usually works on cotton boll weevil ecology in native estuarine Malvaceous trees, being accompanied on her field trips by a Doberman dog because of the danger from *banditos* and drug-runners crossing the border from Guatemala. (She couldn't help me with taco recipes, referring me instead to Sweet since tacos are more Texan than Mexican!) Sweet and Obregon relied mostly on hand collecting, scratching at ground level with gloves and aspirating up the bugs. Although laborious, this method allows a lot of ecological insight into the species as they are collected. The visitors were impressed, however, by the local techniques: sieving wet litter onto a tray and motorised suction sampling of tight wet heath and turf.

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A study of the geometrid moth genus *Paralaea* in Tasmania

Paralaea (Geometridae: Ennominae, Nacophorini) is a genus of large eucalypt-feeding moths found in southern Australia. This genus is interesting from an evolutionary perspective because it is a member of a group of southern Australian geometrids that show primitive characteristics. Six species occur in Tasmania, of which only two have been described, *P. beggaria* and *P. porphyrinaria*. Tasmania has a high species richness compared with other States: two species in W.A., two in S.A. and three in Victoria. I have begun an Honours project on these moths with two major aims. The first is to review *Paralaea* by examining the six Tasmanian representatives of the genus and, where possible, mainland species and to subsequently derive a phylogeny for the genus using both conventional morphological description and DNA sequencing. As the subfamilial and lower classification of the Geometridae is taxonomically and phylogenetically uncertain, the results of this research should shed some light on evolutionary relationships at the genus level and, because of the likely ancestral status of *Paralaea* and related genera, on the classification of the Geometridae as a whole. My second aim is to use *Paralaea* as a model to examine how the diversification of herbivorous insects may occur on a eucalypt host. To achieve this, the association between phylogenetic and biological aspects of the species, including food plant utilization and phenology, will be examined.

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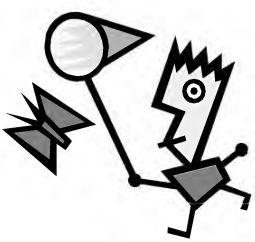

Coming to Tasmania for a quick sweep?

A notice of your planned collecting trip in *Invertebrata* could put you in touch with local experts, enthusiasts and volunteer helpers. Local zoologists would also be interested to hear where you went and what you found!

News from the Tasmanian Museum and Art Gallery

A change in departmental structure at the Tasmanian Museum and Art Gallery now sees Roger Buttermore as Senior Curator of Invertebrate Zoology, and Liz Turner as Curator.

Roger is pursuing bumblebees around the world on his Churchill Fellowship and will return to the TMAG in mid-August. He has already been to New Zealand, Canada and the United Kingdom and at the time of writing is in France. As a sideline while in the UK, he took the opportunity to visit a hospital where maggots are reared to assist in the successful treatment of chronic wounds. There has been an expression of interest in using this method in Tasmania. (It is better not to use one's imagination!) In France Roger has been beset with travelling and accommodation problems due to the World Cup Soccer. However, he has given five well-attended seminars to date on research into the Tasmanian bumblebee situation. The last one was at Lusignan in France. He is now heading for The Netherlands and the Czech Republic. He has agreed to write an article for *Invertebrata* about his trip on his return.

As usual I have been very involved with various aspects concerning introduced invertebrates particularly in the River Derwent. (See elsewhere in this issue for a report on more New Zealand molluscs in the Derwent estuary). Amongst several recent related activities, I was part of a Technical Assessment Panel for grants for the Coasts and Clean Seas Program, and have sat on a special advisory committee on the future of research on the introduced seastar *Asterias amurensis*. I will be attending the Australian Marine Sciences Association National Conference in Adelaide in July, and will afterwards spend a few days recuperating at my sister's vineyards at McLaren Vale. It's a hard job, but someone's got to do it.

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[For information on *Asterias amurensis*, visit **http://www.zoology.uq.edu.au/~kgrannum/asterias.htm**. The TMAG home page is at **http://www.tased.edu.au/tmag/**.]

News from the Uni

The School (sorry, name change) of Zoology received a visit from Dr Michael Warburg of the Department of Biology at Technion University in Haifa, Israel. Michael works on a range of creatures (including salamanders) but is known to invertebratologists for his work on the morphology and reproductive biology of woodlice.

He was here, amongst other things, to have a look at our terrestrial amphipod fauna, and he went away impressed. We have undertaken to send him fixed gill material for an ultrastructure study. He was also interested in our local native scorpion, and he hopes to look at its reproductive cycle during a more extended visit.

Another visitor to the School of Zoology recently was Dr David Morritt, a Senior NERC Research Fellow at Royal Holloway College, University of London. David has worked here previously on the osmoregulatory physiology of talitrid amphipods. He visited to show us the techniques he uses to rear talitrid eggs *in vitro*, and how he manipulates the numbers of eggs in the female's brood pouch.

Some preliminary experiments carried out while he was here suggest that juveniles removed from the pouch are quite capable of returning to it. Carbonated mineral water proved to be a good anaesthetic for these terrestrial animals. About 15 seconds immersion slowed the pleopod beat almost to a stop, and if the animals were then transfered to de-chlorinated tap water they remained quiescent for five minutes or so before making an apparently complete recovery. Manipulating the brood pouch of beachfleas and sandhoppers can be done routinely, opening a number of experimental possibilities, but handling the much smaller landhoppers is very difficult.

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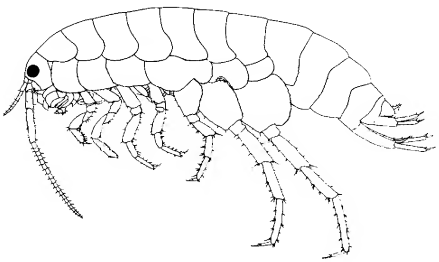


Mysticotalitrus cryptus Friend, 1987, a terrestrial landhopper restricted to the southern half of Tasmania; length ca. 15mm. *After* Friend, J.A. (1987) The terrestrial amphipods (Amphipoda: Talitridae) of Tasmania: systematics and zoogeography. *Records of the Australian Museum, Supplement 7*: 1-85.

Invertebrate Crime Does Not Pay!

A part-time New South Wales debt collector who came close to flying out of Tasmania with a fortune in frozen abalone, was ordered to pay $161,560 in the Hobart Supreme Court yesterday.

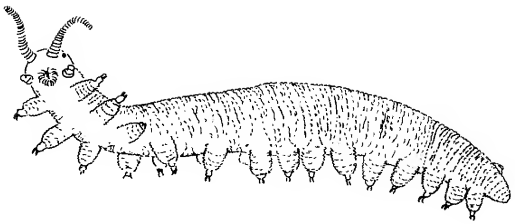
Ian Powell (19), of Tweed Heads, was seated on a plane at Hobart airport when police swooped in after a tip-off and seized 1154 frozen black-lipped abalone stashed in five suitcases and three carry bags on May 18.

The penalty is one of the largest sea fisheries fines imposed in Tasmania.

Under tough new penalties enforced by State Parliament, Powell was fined $14 — the current market value of a shellfish — for every abalone and the figure multiplied by 10, to reach a levy.

— *The Advocate* (Burnie), 18 June 1998, p. 3

Curious, yes, but not all that rare



Tasmania is something of a paradise for onychophoranologists (velvet worm specialists) because of the diversity of our velvet worm fauna.

We have two live-bearing species in the Southwest and another two live-bearers in the Northeast. One of the Northeast species, the Blind Velvet Worm *Tasmanipatus anophthalmus* from St Marys, is on the State's endangered list. We also have at least 11 species of egg-laying velvet worms. None of the egg-layers is known to be endangered, but a Northwest egg-layer, *Ooperipatellus cryptus*, is currently listed as vulnerable.

Velvet worms are strange little animals, not closely related to anything else, and they're so rarely seen that even experienced invertebrate collectors are surprised when they come across one. All velvet worms are predators. They live in rotting logs and leaf litter, emerging at night to hunt their prey (insects, so far as we know). A typical egg-layer (above right, 6X life-size) has 14 pairs of legs and a dense coat of tiny bumps which give the animal a velvety appearance. The rich colour patterning seen on velvet worms is produced by bumps of different colours. Colour pattern can vary greatly within a species and is not a reliable guide to species identification.

Egg-laying velvet worms are just about everywhere in Tasmania. You may not have seen them, but they're living somewhere near you. The map (right) shows the localities at which egg-laying species other than *O. cryptus* have been collected since 1970. Places on the map from which they appear to be absent, such as King Island, may be 'blank' only because not enough effort has been put into velvet worm hunting. Velvet worms can be very hard to find. It usually takes a deliberate search to locate one. You are unlikely to spot a velvet worm if you're looking for some other forest litter invertebrate, such as a ground beetle.

Egg-layers range from sea level to at least 1300m. They live in every sort of wooded vegetation, from coastal scrub to rainforest and from tall wet eucalypt forest to Midlands-type grassy woodland. They're known to tolerate a fair amount of habitat abuse, including clearfelling/burning and partial clearing for agriculture. The most recent recorded locality is the Nut at Stanley, a place I've always thought was far too Europeanised to be home to velvet worms. Two specimens were collected there in May by Kevin Bonham in a patch of dwarf blackwood scrub.

Tasmania's egg-laying velvet worms are currently being studied by Claudia Brockmann, a PhD candidate at Hamburg University. Claudia spent six months here in 1996-97 and is continuing her taxonomic and biological work with live specimens in Germany. She has found that genera are easy to separate morphologically, but distinguishing species is difficult and often requires dissection. Among her achievements is the production of an infra-red light video record of a velvet worm hatching from an egg!

When Claudia finishes her investigations we'll have a much better picture of the egg-laying species and their distributions, but it's already clear that 'rarely seen' doesn't necessarily mean 'rare'.

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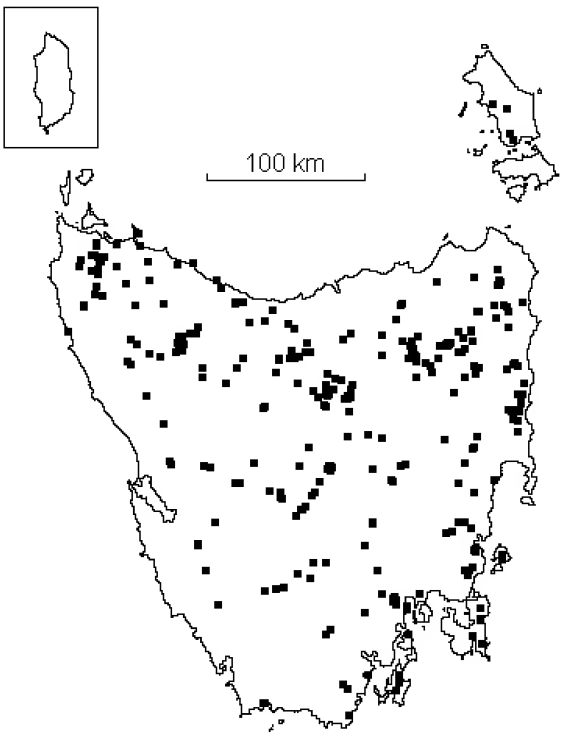

(Abstract of a paper to be presented at the 1998 International Meeting of the Society for Conservation Biology, July 13–16 at Macquarie University, Sydney. Many thanks to the author for sending an 'advance copy' to Invertebrata!*)*

Measuring spider diversity : effects of sampling method, and different spatial and temporal scales

Spiders were surveyed in a coastal heathland community using three sampling methods, across three spatial scales, at monthly intervals for 16 months. A total of 8,625 spiders were collected and identified into 33 families, 97 genera and 130 species. There were marked differences in the number of taxa collected by each sampling method: pitfall traps (94% total), visual search (41%) and sweep net (25%). For the number of families and species detected across space and time, the pitfall trap and sweep net methods identified significant, yet contrasting, spatial differences at only one of three spatial scales surveyed. The visual search method indicated no significant differences. In addition, highly significant interactions with time in the pitfall trap results implied that strong temporal variation had to be accommodated to identify spatial patterns in richness, particularly for species richness. Moreover, seasonal analyses revealed an increasing loss of information with coarser temporal scales, with a potential failure to detect significant differences in species richness. These results highlight the risk of using data from limited sampling efforts, especially without a suite of sampling methods, for conservation decision making.

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Churchill, T.B. 1993. Effects of sampling method on composition of a Tasmanian coastal heathland spider assemblage. *Memoirs of the Queensland Museum* 33: 475-481.

Churchill, T.B. 1996. Coastal heathland spiders: spatial distribution and biogeographic significance. *Records of the Queen Victoria Museum* 103: 151-158.

Notices & reviews

Mollusca: The Southern Synthesis. Fauna of Australia Volume 5. Environment Australia. C.S.I.R.O. for the Commonwealth of Australia, 1998; 2 vols. ISBN 0-643-05736-0. $295 plus postage.

The preface to this work starts with the following statement:

'From many perspectives, the phylum Mollusca is one of the most significant components of biodiversity in the Australian region. With an estimated 19 000 species, molluscs rank among the largest and most diverse groups, and are important components of the ecological communities throughout the region, from desert outcrops, mound springs and montane rainforests to the depths of the ocean.'

In every sense this is a truly monumental publication, occupying, as it does, two parts (A and B) and 1234 pages, with contributions from over 70 authors and citing nearly 8000 papers in primary literature. The work contains over 800 text figures, most consisting of many individual drawings and photographs, 37 pages of full-colour photographs of living animals, 19 pages of glossary and an 87-page index. It was more than 10 years in production and will be the primary reference on Australian molluscs for very many years to come.

To any student of the Mollusca there simply aren't enough superlatives to describe this publication. It is to Australian malacology what the CSIRO's *Insects of Australia* was to Australian entomology over 25 years ago. In one stroke we have a readily available comprehensive reference to every aspect of malacology and an easy way into the maze of primary literature that, until now, has been all but inaccessible to almost all students of the group. The text is of a uniformly high standard across all groups because each section has been written by the top expert in that group and then checked and edited by other specialists to ensure the standard is maintained.

This high-standard text is married to some of the finest illustrations available anywhere, very many especially commissioned from the best biological illustrators available, and they include many new, unpublished details in most groups. It can be said with certainty that the illustrations alone would be worth the purchase price.

Each family of molluscs found on the continent of Australia or in its territorial seas is treated in the same comprehensive fashion. Besides family structure, systematic position and notes on generic diversity and fossil history, there are also details of each family's general biology, ecology, economic importance and even conservation status. All in all this work is now THE standard reference on all aspects of Australian malacology. Though you wouldn't refer to it to identify the species of shells found on the local beach, yet every serious student of any facet of malacology from anywhere in Australia and beyond should see and refer to this work regularly and frequently.

As in any publication, one can always find minor errors and omissions if you look hard enough, but this is a truly great publication and will stand as such for a long time.

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The weird beast seen in dorsal view in last issue's **'What Is It?'** is the water mite *Piona cumberlandensis* (Rainbow, 1906). It's a microscopic animal found in lakes and pools in the NT, WA, SA, NSW, Victoria and Tasmania. Mark Harvey of the Western Australian Museum, who drew the illustration, writes:

Neither ant nor spider it be,
But smaller and more aquatic. She
is commoner than the fish she deters,
but ends up in samples or limnological hors-d'oeuvres.

Her oval shape and little hairs
belie her beauty to those unawares
of the wondrous nature of acarological things —
palps and eight legs are always better than wings.

Her name you must guess, from all those bugs
and long-legged creatures and snails and slugs,
that adorn the earth, including Australia.
And the artist agrees, that as a poet, he's a failure.

Reference:

Harvey, M.S. 1996. A review of the water mite family Pionidae in Australia (Acarina: Hygrobatoidea). *Records of the Western Australian Museum* 17:371-393.

Nematodes Infecting Human Muscles

The March 1998 issue of the *Medical Journal of Australia* reported two human cases of severe generalised muscle inflammation associated with a new species of nematode (superfamily Muspiceoidea: family Robertdollfusidae) (Dennett *et al.* 1998). These cases are interesting in that there is good reason to believe that the parasitic infections were acquired in Tasmania (Dennett *et al.* 1998, Andrews *et al.* 1994).

The two cases presented separately in 1988 and 1997 with both individuals having a long history of progressive weakness and generalised muscle pain. Initial muscle biopsies showed only inflammation of the muscles. Their condition worsened after corticosteroid treatment and repeat muscle biopsies then showed numerous small adult and larval nematodes within the muscle cells. Interestingly, one person had another species of nematode infecting her muscles - *Trichinella pseudospiralis* (order Trichurata: family Trichinellidae) (Andrews & Pozio 1997). Like the better known species *Trichinella spiralis*, *T. pseudospiralis* has been implicated in human infections in Thailand (Pozio *et al.* 1996), notably through the consumption of poorly cooked pork. Recently pig infections were also found in New Guinea (*pers. comm.* Ifor Owen).

T. pseudospiralis was first discovered in Tasmania in 1988 in meat-eating marsupials, owls and birds of prey (Obendorf *et al.* 1990, Obendorf & Clarke 1992). In other countries where either of the *Trichinella* spp. are endemic, humans eating uncooked, partly cooked and cold-smoked meats made from various animals, especially wild animals, are at risk of being infected.

In the case of the muspiceoid nematode neither the route of infection for humans nor life history are known. The family Muspiceidae contains the genera *Muspicea* from the subcutaneous tissues of mice and *Riouxgolvania*, *Lukonema*, *Pennisia* and *Maseria* from subcutaneous tissues in the wings and feet of bats. Another family Robertdollfusidae contains the genera *Robertdollfusa* from the anterior chamber of the eye of covids and the brain of falconids, *Durikainema* from the central veins, heart vessels and lymphatics of kangaroos and wallabies and from the pulmonary arteries of koalas and brushtail possums, and *Lappnema* from the subcutaneous capillaries in the ears of reindeer (*pers. comm.* David Spratt).

At this stage Tasmania is the only Australian State to record *T. pseudospiralis* in its wildlife and it is the most likely place where the two Australian residents became infected. Human infections with *Trichinella* spp. are usually acquired through consumption of infected meat, either from wild animals or from domestic animals with access to infected fresh meat or carrion.

The definitive host and mode of transmission of the muspiceoid infection in Tasmania are not known. As a justifiable precaution in the meantime, microbiologists and parasitologists have advised the public to ensure that meat, particularly wild or game meat, is well cooked before eating. Perhaps experimental studies with related species, like *Durikainema macropi* or *Muspicea borreli*, will give an insight into how people could be infected with this new Tasmanian nematode.

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Two new records of molluscs probably introduced into southeastern Tasmania

Just when you think it's safe to go back into the water, there's another surprise waiting. On 31st May this year I was astounded to find two new records of molluscs for Tasmanian waters within two minutes and within two metres of each other. Unbelievable, but true. These time and space factors must be some sort of record considering that I wasn't looking for anything new in the first place, just fossicking around the rocks at Blackmans Bay .

Both species, a gastropod and a bivalve, are natives of New Zealand, and have not previously been recorded from Australian waters. Neither is likely to damage the indigenous ecology of the Derwent River, but will join the still growing list of invertebrate marine species found in these waters. Because of the proximity of the shells to each other, there may be reasons for the occurrence of these species other than ballast dumping. One hypothesis may be that shells have been thrown/lost overboard from a boat. In late June a dive team from the Centre for Research into Introduced Marine Pests (CRIMP) at CSIRO will attempt to find whether live specimens exist in the area. The Te Papa Tongarewa Museum, Wellington, New Zealand, knows of no natural records for these species outside New Zealand (*pers.comm.* Bruce Marshall). There are no registered specimens in the Museum of Victoria or the Australian, Tasmanian or South Australian Museums.

Found:

Myadora striata Quoy & Gaimard, 1835 (Mollusca: Bivalvia: Myochamidae). Three left (flat) valves, two with the ligament still attached to the hinge. On sand in small channel of water on sandstone rock platform, southern end of Blackmans Bay, Derwent Estuary, Tasmania.Collected by Elizabeth Turner, Tasmanian Museum, on 31st May, 1998. Normally found in the North and South Islands of New Zealand, and Stewart Island. Common, half buried on sandy flats at low tide and in shallow water. Largest and most abundant of the NZ Myochamidae.

Crepidula costata Sowerby, 1824 (Mollusca: Gastropoda: Crepidulidae). One specimen. On sand in small channel of water on sandstone rock platform, southern end of Blackmans Bay, Derwent Estuary, Tasmania. Collected by Jeff Cossum, Tasmanian Museum, on 31st May, 1998. Normally found in the North Island of New Zealand; Cape Maria van Diemen to Bay of Plenty, common under low tidal rocks, and on mussel shells, down to about 25 fathoms.

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[The CSIRO's Centre for Research on Introduced Marine Pests (CRIMP) is at **http://www.marine.csiro.au/CRIMP/**]